

Appln. No. 10/048,013
Amd. dated June 11, 2007
Reply to Office Action of March 12, 2007

REMARKS

The Office Action and the cited and applied references have been carefully reviewed. No claim is allowed. Claims 1, 4, 5, 9, 12, 19 and 20 presently appear in this application and define patentable subject matter warranting their allowance. Reconsideration and allowance are hereby respectfully solicited.

Claims 1, 4, 5, 7-9, 12, 19, 20, 26 and 27 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. This rejection is obviated by deletion of the language "up to two hours" from claim 1 without prejudice.

Claims 1, 4, 5, 7-9, 12, 19, 20, 26 and 27 have been rejected under 35 U.S.C. §112, second paragraph, because of lack of antecedent basis (i.e., in the preamble) for the limitation "separating the spermatozoa by spermatozoa separation methods used in assisted reproduction technique (ART)". This rejection is obviated by the amendment to claim 1 to insert "and separating the spermatozoa" into the preamble.

Claims 1, 4, 5, 7-9, 12, 19, 20, 26 and 27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over

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Nass-Arden et al., *Mol. Reprod. Dev.* (1990) in view of Vlahos et al., *J. Biol. Chem.* (1994) and Bonjouklian et al., U.S. Patent 5,378,725. This rejection is respectfully traversed.

Nass-Arden relates to treating ram sperm with quercetin. The examiner applies Vlahos for its disclosure of LY294002 as a specific inhibitor of phosphatidylinositol 3-kinase (PI3K). However, contrary to the examiner's assertion in the sentence bridging pages 4 and 5 of the Office Action, nowhere does Vlahos beneficially teach that LY294002 is efficacious in inhibiting PI3K activity in sperm cells. Instead, Vlahos teaches at page 5248, lines 7-10, that LY294002 acts as an anti-proliferative agent and substantiates a role for PI3K in cell proliferation.

Walker et al., *Mol. Cell* 6:909-919 (2000), a copy of which is attached hereto for the examiner's consideration, analyzed the interaction between certain PI3K inhibitors, including quercetin and LY294002, with the enzyme PI3K. As taught by Walker, both inhibitors, though structurally linked, are quite different in their activity. LY294002 is specific for PI3Ks whereas quercetin is a non-specific broad spectrum protein kinase inhibitor (see page 915, left column, last paragraph). This difference is also confirmed by Vlahos.

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Furthermore, the interaction of LY294002 with PI3K is quite different from the one for quercetin and PI3K (see page 916, left column, first sentence of first full paragraph).

Consequently, one of ordinary skill in the art reading Nass-Arden, which exclusively relates to the effect of the broad-spectrum kinase inhibitor quercetin on ram sperm motility, and being aware of the differences in quercetin and LY294002 as reported by Walker and of the anti-cell proliferation activity of LY294002 as reported by Vlahos, would certainly not be motivated to use LY294002, which interacts differently with PI3K than quercetin and which has anti-cell proliferative activity, as a quercetin substitute for increasing sperm motility. This would be for a wholly different purpose from inhibiting cell proliferation with LY294002 as taught by Vlahos. There is nothing in Nass-Arden or Vlahos to motivate one of ordinary skill in the art to use LY294002 in place of quercetin for increasing sperm motility.

The applied Bonjouklian reference is not relevant to the present claims and add nothing to satisfy the deficiencies in the Nass-Arden and Vlahos references as noted above. Accordingly, the combination of Nass-Arden, Vlahos and

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Bonjouklian simply cannot lead one of ordinary skill in the art to the presently claimed invention.

Reconsideration and withdrawal of the rejection are therefore respectfully requested.

In view of the above, the claims comply with 35 U.S.C. §112 and define patentable subject matter warranting their allowance. Favorable consideration and early allowance are earnestly urged.

Respectfully submitted,

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